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ENGLISH ONLY

Distr.: GENERAL

REPORT OF THE WHO MEETING ON MEDICAL EDUCATION AND RATIONAL PRESCRIBING OF PSYCHOACTIVE DRUGS

St. George's Hospital Medical School
London, 15-19 September 1986

WORLD HEALTH ORGANIZATION

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1. Introduction

It is widely recognized that modern drugs have played a major role in the revolution which has taken place over the last forty years in the care of the mentally ill. This revolution has been to mankind's great benefit. It has reduced the number of psychiatric patients requiring prolonged stays in hospital, and has helped make treatment more humane.

Unfortunately, the psychotropic - literally, "mind altering" - drugs have not been without their disadvantages. These are not only seen as a result of illicit use of the drugs, but also when they are legitimately prescribed. In particular, their undisciplined use can lead to dependency and other states, arguably worse than those that use of the drugs seeks to relieve. Concern from inside the health professions and from elsewhere has been widespread, and has resulted in many attempts to make prescribing of these substances more rational.

These, often successful, attempts have been at local, national and international level: they have resulted in some limitation of the use of psychotropic drugs which is widespread. Frequently, these are prescribed, not for defined mental illness, but as a convenient response to personal and social problems. Their sequelae may be very serious - one authority has described benzodiazepine withdrawal, for example, as "a serious illness". And their use is not restricted to the more affluent countries: the problem is world-wide. Polypharmacy often occurs as a substitute for rational and specific use of these drugs. Part of the responsibility for this situation must clearly be laid at the door of medical education.

The problem of inappropriate psychoactive drug prescribing was of such concern to the World Health Organization that in 1982 the Executive Board requested the Director-General to take a major initiative in the field. As part of a programme of activities designed to involve Member States, drug manufacturers and medical institutions, it sought "to intensify efforts aimed at improving prescription, delivery and utilization practices regarding psychoactive drugs, through educational programmes for physicians and other health workers". WHO held a general consultation on the education of health care professionals in Moscow on 8-13 October 1984: this recommended inter alia that specific aspects of training be reviewed, with a view to their improvement with respect to what was called the "rational prescribing of psychoactive drugs".

A Working Group was thus convened by the Division of Mental Health, WHO Headquarters to consider medical education and rational prescribing of psychoactive drugs. The World Health Assembly discussed the subject of "Rational Use of Pharmaceuticals in General" in May 1986, and Ministers of Health, meeting in London, agreed that participating countries should endeavour to "take necessary steps to improve marketing and prescription practices for psychoactive substances". A United Nations International Conference on "Drug Abuse and Illicit Trafficking" is due to be held in Vienna in June 1987: it will study new initiatives to reduce drug abuse through implementation of the proposals made by this group.

The Working Group met at St. George's Hospital Medical School, London, from 15 to 19 September 1986. (For membership, see Annex 1.) Dr Richard West was elected Chairman, Dr Charas Suwanwela, Vice-Chairman, and Mr Richard Wakeford, Rapporteur.

2. Objectives of the Working Group

The purpose of the meeting was to review the teaching of rational prescribing of psychoactive drugs, to identify reasons for its apparent ineffectiveness, and to make recommendations for its improvement - in medical schools throughout the world. In particular, the Group was asked to:

- describe prescribing patterns of psychoactive drugs and identify problems surrounding these;
- analyse the reasons why medical education is failing to prepare doctors properly in this connection;

ANNEX 3

EXAMPLE OF STRUCTURING MARKING GRID, FOR THE VIVA VOCE OR ORAL EXAMINATION: THIS ONE IS BASED ON THAT USED IN THE MEMBERSHIP EXAMINATION OF THE (BRITISH) ROYAL COLLEGE OF GENERAL PRACTITIONERS

..... Candidate ..... Candidate's Number ..... Date

Please indicate by a tick which areas of competence were substantively explored within a topic. Then assign a mark for the topic. Do not try to cover every area within each topic — use the grid to guide your selection and use of subsequent topics.

TOPIC	AREAS OF COMPETENCE						MARK	COMMENTS
	problem definition	gen. management	preventive aspects	communication	professional ethics	attention to rational prescribing		
.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	....	.....
.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	....	.....
.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	....	.....
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.....	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	....	.....

Examiners' Names and numbers
1 ..... Mark .....
no. .....
2 ..... no. ..... Mark .....

----------> Consensus Mark .....

Comments for possible feedback to Candidate

.....
.....
.....
.....
.....
.....

Marking Levels	
Mark	Competence
0	.
1	...
2	.....
3	Bad fail
4	Clear fail
5	Marginal fail
6	Clear pass
7	Good pass
8	.....
9	.....

= = =

- specify initiatives which Member States and their medical schools could take to improve matters; and

- make recommendations for further action.

3. Proceedings

The Working Group met continuously over a five-day period. Dr Richard West, Dean of St. George's Hospital Medical School, welcomed the participants. Giving a brief history of the School, he emphasized that the subject was of particular interest to it, as it placed a high priority on preventive medicine.

Professor Arthur Crisp, Department of Psychiatry, St. George's Hospital Medical School, and Chairman of the Education Committee, UK General Medical Council, also welcomed the participants. Since the General Medical Council attached great importance to the rational use of psychoactive drugs, it also would like to receive a copy of the report.

Dr Inayat Khan, Senior Medical Officer, Division of Mental Health at WHO/HQ in Geneva, added his welcome to the participants on behalf of Dr H. Mahler, Director-General of WHO. He thanked St. George's Hospital Medical School for hosting the meeting. He thanked Dr A. H. Ghodse for his dedicated work and support to WHO in organizing it and for his earlier assistance in planning the project.

Dr Khan offered a special welcome to Dr J. Rankin and Professor C. Suwanwela as representatives of WHO Collaborating Centres in Research and Training in Drug Dependence, at Toronto and Bangkok, respectively. He also thanked Dr E. Schoener for representing the Association for Medical Education and Research in Substance Abuse.

Following the official opening and welcome, the meeting:

- reviewed reports of previous meetings;

- received and considered papers from participants (see Annex 2);

- discussed prescribing patterns of psychoactive drugs and associated problems;

- agreed to working definitions of relevant terms;

- reviewed current activities in the teaching of the subject;

- analysed deficiencies from a medical education perspective;

- proposed initiatives which might be taken to remedy these deficiencies, at both undergraduate and continuing levels of training; and

- made recommendations for further research and other activities.

4. Definitions

4.1 Psychoactive/psychotropic drugs

For the purpose of this report, the term "psychoactive" embraces all those substances which affect the mind. It is commonly used synonymously with the term "psychotropic", but the two should be clearly distinguished. While "psychoactive" embraces the whole group of substances, including narcotics, "psychotropic" covers only those which influence mental processes and can lead to dependence: they are listed in the 1971 Convention on Psychotropic Substances.

4.2 Rational prescribing

As with all prescribing, the goal for psychoactive drugs is that the right agent will be prescribed to the right patient at the right dose for the right duration of therapy, and that the risks of therapy will be acceptable.

Rational prescribing may be achieved by a systems approach to drug use by physicians and patients. This incorporates a coherent series of interrelated components affecting drug availability, drug use monitoring, drug prescribing standards, drug utilization audit, feedback/education of individual physicians, and monitoring patient outcomes. Since the nature of these components will vary, for example, between different countries, it is clear that the context will influence the precise definition of "rational" prescribing.

Thus "rational" is contextually determined. What is reasonable to the patient, physician, insurer, politician, administrator, economist, manufacturer, distributor, pharmacist and the public can be quite different. These views are affected by social, cultural and economic factors, population health status and prevalent forms of health care delivery in particular countries. In addition prescribing patterns are affected by drug marketing legislation, patent laws, international drug control conventions, methods of insurance, method of pharmacist payments, existence of drug formularies and health care payment systems. However, because the physician almost invariably ultimately controls the prescribing of a drug, the issue ultimately focuses upon him/her.

4.3 The individual physician. The therapeutic plan to achieve rational prescribing includes:

(a) Establishing the diagnosis, the first important criterion. (The individual physician must have sufficient evidence to support a diagnosis.)

(b) Designing an overall treatment plan before a psychoactive drug is prescribed. (The plan should include elements of physical, psychological, social, educational, recreational, family and pharmacological therapy, as appropriate.)

(c) Setting feasible short- and long-term outcomes for the treatment.

(d) Basing drug selection upon scientific proof of efficacy in the particular diagnostic patient group. (The drug's relative safety, initial dose, continuing dose and planned duration of therapy should be known.)

(e) Monitoring the patient's clinical condition at appropriate intervals and obtaining evidence of response. (Therapy should be continued only for the usually recommended duration of known effectiveness. Drug dosage should be optimized within scientifically recommended dosage schedules on the basis of clinical response or using indirect laboratory tests to maintain drug dose in prophylaxis.)

The educational implication of this therapeutic plan is that the graduate physician must possess the necessary knowledge, skills and attitudes to draw it up and implement it.

4.4 The health care system. Evidence indicates that prospective drug utilization monitoring systems are essential if efficient drug use is to be achieved (e.g. British Columbia Pharmacare, Medicaid Management Information System; Nordic country systems; UK Prescription Pricing Authority). Drug dosage, duration, indication and patient and physician identifiers must all be linked. Many existing drug utilization systems, some very small and informal, could be turned to this purpose. Local, decentralized approaches are most desirable.

Drug utilization monitoring must be linked to review (audit) of the patterns of prescribing. Such audit permits identification of obvious deviation from prescribing standards and the basis for targeted strategies to modify prescribing through education and restriction. Physician peer experts prepare audit standards of rational prescribing for specific drugs and drug classes. Examples of precribing standards that can be considered include - dosage; duration of therapy; polydrug use.

With the advent of more comprehensive health care systems and the extensive involvement of governments, insurers and health care administrators, new dimensions of "rational" must be addressed. In such situations, peer and expert standards for prescribing may be used as guidelines to achieve "quality of care" and often to reduce cost. Compliance with such guidelines will indirectly measure patient outcomes, but this should not be substituted for direct measures of health status.

ANNEX 2

BACKGROUND PAPERS

1. Action in Respect of International Conventions on Narcotic and Psychotropic Substances. Sixty-ninth Session, EB69.R9, 22 January 1982.

2. Consultation on Education of Health Care Professionals for Improving Prescription, Delivery and Utilization of Psychoactive Substances, MNH/PAD/84.16, Moscow, 8-13 October 1984.

3. Backgound to the Meeting. A. H. Ghodse, I. Khan & R. West.

4. Perspective on the Prescription of Psychoactive Drugs. J. Marks.

5. Drug Abuse by Doctors: Self-prescribing of Psychoactive Drugs. J. G. Rankin.

6. Drug Abuse in the Medical Profession: Addict Doctors and the Home Office. G. V. Stimson, E. Oppenheimer & C. A. Stimson.

7. Recent Developments in Professional Control: The Impaired Physician Movement in the USA. G. V. Stimson.

8. Prevalence of Alcohol and Other Drug Problems Among Physicians. J. M. Brewster.

9. Factor Influencing Prescribing. E. Hemminki.

10. Definition of Rational Prescribing. O. O. Ogunremi.

11. Definition of Rational Prescribing What Does It Mean? J. G. Rankin.

12. Reflections on the Definition of Rational Prescribing of Psychoactive Drugs. C. Suwanwela.

13. Defining Rational Prescribing of Psychoactive Drugs. E. M. Sellers.

14. Principles of Rational Prescribing of Psychoactive Drugs. E. C. Senay & C. R. Schuster.

15. The Physician and Psychoactive Drugs. The Minister of National Health and Welfare, 1982, Canada.

16. Alternatives to Drug Prescribing. A. H. Ghodse.

17. Medical Education and Rational Prescribing of Psychoactive Drugs. O. O. Ogunremi.

18. Review of Medical School Teaching on the Prescribing of Psychoactive Drugs in the United Kingdom. R. West, J. Falkowski & A. H. Ghodse.

19. Medical Education and Rational Prescribing of Psychoactive Drugs in North America. E. M. Sellers.

20. Medical Education and Rational Prescribing of Psychoactive Drugs - Background Paper. R. Wakeford.

21. Undergraduate and Postgraduate Education Towards Rational Prescribing. J. Gallagher.

22. Rational Prescribing: The Role of Teaching Institutions. C. Suwanwela.

23. The Role of Professional Organizations. A. H. Ghodse.

24. The Assessment of Competence of Students in the Health Field. Report on a Working Group, Varna, Bulgaria, 23-26 September 1980, WHO Copenhagen, 1981.

25. Learning to Deal with Drug-dependent Patients: One Physician's Reflections. N. Grosser.

26. Benzodiazepine Withdrawal: An Unfinished Story. H. Ashton.

ANNEX 1

LIST OF PARTICIPANTS

Temporary advisers

Professor O. O. Ogunremi, Faculty of Health Sciences, University of Ilorin, Ilorin, Nigeria.

Dr Ed. Sellers, Associate Dean - Academic Affairs, University of Toronto Medical School, 1 King's College Circle, Toronto, Canada.

Professor Charas Suwanwela, Dean, Faculty of Medicine, Chulalongkorn University, Phya-Thai Road, Bangkok, Thailand. (Vice Chairman)

Mr Richard Wakeford, Senior Research Associate, Office of the Regius Professor of Physic, Cambridge University School of Clinical Medicine, Addenbrooke's Hospital, Cambridge CB2 2QQ, England. (Rapporteur).

Dr Richard West, Dean, St. George's Hospital Medical School, Tooting, London SW17 0QT, England. (Chairman)

Secretariat

Dr James Gallagher, Division of Mental Health, WHO, Geneva, Switzerland.

Dr A. Hamid Ghodse, Consultant Psychiatrist, St. George's Hospital, Tooting, London SW17 0QT, England. (Co-Secretary)

Dr Inayat Khan, Senior Medical Officer, Division of Mental Health, WHO, Geneva, Switzerland. (Secretary)

WHO Collaborating Centre for Research and Training

Dr J. Rankin, Head of Medicine, Addiction Research Foundation Clinical Institute, 33 Russell Street, Toronto, Ontario, Canada M5S 2S1.

Association for Medical Education and Research in Substance Abuse

Dr E. Schoener, Department of Pharmacology, and Director, Addiction Research Institute, Wayne State University School of Medicine, 540 East Canfield, Detroit, MI 48201, USA.

4.5 Medical education

Medical education comprises a period of university (or equivalent) training, followed by postgraduate or specialist training (controlled by either universities, non-university bodies such as health departments, or independent specialty boards): it includes continuing medical education. This last component is frequently neither formal nor systematic, though it has the potential for a substantial and rapid influence upon practice.

Undergraduate medical education is normally followed by extended specialty training in industrialized countries. Both undergraduate and postgraduate training periods will shape prescribing practices, as graduates can rarely independently practise their chosen specialty until the end of the postgraduate experience. However, graduates often have unrestricted prescribing rights well before this time.

In most developing countries, graduates are expected to enter general practice with little or no training beyond medical school. Many undergraduate programmes also emphasize the memorising of data such as prescription dosages, whilst ignoring broader principles and considerations.

5. Prescribing patterns of psychoactive drugs

5.1 Current practices

Apart from the evidence of widespread use of psychotropic drugs, data on other trends are sparse. Patterns of use vary between countries, within countries, and between drugs. Conclusions must be drawn with caution.

There is however general evidence that women use these drugs more than men and that level of use increases with age. The male and female roles in different sociocultural settings may determine certain drug-taking behaviours.

Psychotropic drug use is not confined to psychiatric patients and psychiatric hospitals. Drugs such as benzodiazepines may be widely used for purposes unrelated to specific illness. In societies and sections of society where the ordinary fabric of support has been disrupted by poverty, migration, or rapid socioeconomic change, drug misuse and related problems flourish. Availability is a major factor: it is a complex concept, though, embracing psychological availability mediated by societal and group mores - i.e. whether it is acceptable to take a drug - as well as physical availability.

Limited information is available about physician characteristics which are associated with inappropriate prescribing. It appears to happen more frequently with older doctors, ones with little postgraduate training, and those who practise in rural or isolated settings and chronic care institutions. Further research is needed on this subject.

5.2 Problems relating to current prescribing patterns

Problems relating to the prescribing of psychotropic drugs may be considered from three perspectives: the causes, the patterns and the consequences of inappropriate prescribing.

The immediate causes of inappropriate prescribing include the possibility that the prescribing physician:

- is uninformed or misinformed;
- wants to save time;
- is subjected to inappropriate demands by patients;
- does not have access (actually or effectively) to alternative measures;
- may be restricted in prescribing by external, often financial, factors - e.g. financial resources of the patient; and
- is competent or impaired.

Patterns and features of inappropriate prescribing include:

- indiscriminate prescribing - "a pill for every ill";
- failure to consider or use non-pharmacological alternatives or supplements in treatment;
- misdiagnosis;
- incorrect choice of drug, dosage or duration of administration; and
- non-therapeutic prescribing - i.e. prescribing used to achieve ends other than those of benefit to the patient's health/welfare

Inappropriate prescribing promotes or contributes to:

- inadequate or inappropriate patient care;
- adverse drug reactions;
- unnecessary financial expenditure on drugs by individuals or communities;
- failure to develop professional skills, professional resources, and community resources and programmes that could contribute to prevention of problems for which psychotropic drugs are inappropriately prescribed;
- drug dependence (and drug+alcohol dependence);
- problems of acute and chronic drug interaction; and
- drug trafficking.

5.3 Origins of these problems

Why are psychotropic drugs inappropriately prescribed? To conceptualize the issue systematically, the factors which influence professional behaviour may be considered with respect to four domains - disease, drug, patient and environment.

5.4 Disease. Although knowledge is extensive about disorders for which psychotropic drugs may be useful, agreement on characteristic syndromes and on specific causes of psychiatric disorders does not exist. It is thus difficult to design rational strategies of therapeutic intervention for all patients. Patients often present with complicated histories and unclear signs and symptoms - sometimes suggesting multiple problems. The difficulty for the clinician - especially if training has been limited - is great.

Attitudes possessed by clinician, patient and others, will greatly influence matters. Whilst mental illness often carries a stigma in the minds of lay people, the physician's attitudes may be influenced by a lack of understanding of the illness in organic terms. This, and the experience of frustration which often accompanies chronic diseases, may lead him to minimize the validity and seriousness of psychiatric disorders. Unrealistic expectations (on all parts) of treatment not infrequently compound the frustration when it seems to fail.

5.5 Drug. Much information exists about most pharmacological agents. Specific details are generally learned at medical school, but whether this knowledge is carried forward to future practice is debatable. Of most concern is a lack of knowledge amongst "trained" doctors about dosing (quantity, intervals), specific indications/contraindications, induction and withdrawal, acute and long-term side effects, tolerance and dependence. The physician who comprehends the rationale for a drug's use, effects and limits, as well as its pragmatic features, is better prepared to use it effectively.

(10) Similarly, licensing and registration bodies should take steps to ensure that rational prescribing of psychoactive drugs is given the attention it merits within their examinations.

Continuing medical education (CME)

(11) Where patterns of inappropriate prescribing of psychoactive drugs have been identified, remedial CME programmes should be implemented and evaluated for their impact on prescribing practices - for example, by medical schools, hospitals, professional organizations.

Research

(12) WHO should seek to promote essential research into basic and applied aspects of the problem. In particular, the following should be investigated:

- the nature and extent of problems due to non-rational prescribing of psychoactive drugs;
- the relationship between factors in the selection of medical students and their later performance, rational prescribing especially;
- the extent and form of relevant current teaching practices; and
- the effect of medical education strategies at undergraduate, postgraduate and continuing levels, upon prescribing practices - in particular, the impact of CME programmes (which the Group considered were likely to have the quickest and greatest effect on practice).

Future support for WHO action

(13) WHO should continue its association with the United Nations Fund for Drug Abuse Control (UNFDAC) and seek its support for initiatives to promote rational prescribing of psychoactive drugs.

(14) WHO should stimulate increased awareness of the problems associated with non-rational prescribing of psychoactive drugs, e.g. by promoting the use of modern public relations techniques (such as stickers with slogans) to obtain the interest of medical students - both the prescribers and, frequently, the health officials of the future - in the problem.

(15) WHO should encourage the pharmaceutical industry to increase its support for initiatives at national and institutional levels.

(16) Professional groups and academic societies concerned with the promotion of good and uniform prescribing practices should be encouraged by WHO to continue and/or enforce their initiatives concerned with the rational prescribing of psychoactive drugs.

(17) The Secretary-General of the United Nations, having concern for the worsening situation in many countries with respect to the abuse and misuse of psychoactive drugs, should be asked to place this report before the meeting of the International Conference on Drug Addiction and Illicit Trafficking, scheduled for June 1987, in order to bring to its attention:

- the importance of inappropriate prescribing of psychoactive drugs as a factor in drug dependence, problems of drug interaction and drug trafficking; and
- the ways in which improvements in the education of health workers can contribute to the prevention and alleviation of these drug-related problems.

ACKNOWLEDGEMENTS

The United Nations Fund for Drug Abuse Control, Vienna, is gratefully acknowledged for its financial support for this meeting.

Such information would facilitate the provision of detailed recommendations to improve education in this field: it is urgently needed.

9. Recommendations

General

(1) We recommend that the World Health Organization - in collaboration with national government health agencies, and through them with organizations responsible for the registration, certification and licensing of health workers, and national health worker organizations - take action to increase awareness of the serious adverse consequences of the inappropriate prescription and use of psychoactive drugs, and the ways in which improved education of health workers can contribute to the prevention and alleviation of these problems.

(2) Educational programmes for rational prescribing of psychoactive drugs should be developed within the context of this as only one of a variety of therapeutic options. Programmes should take into account major regional and national differences in the availability and patterns of use of these substances, and systems of health care and health worker training.

(3) WHO should promote projects concerned with medical education and rational prescribing through interested centres and organizations, including WHO Collaborating Centres in Training and Research in Drug Dependence.

(4) Projects and programmes for health workers on the rational prescribing of psychoactive drugs should give priority to drugs on the WHO Essential Drugs List.

(5) WHO should encourage and support the evaluation of the effects of such projects and programmes.

(6) In these activities, WHO should coordinate its promotion of rational prescribing with other relevant WHO programmes - e.g. Essential Drugs, Primary Health Care, Drug Action Programme and specific programmes of regional offices.

Workshops to promote understanding and action

(7) We recommend that WHO should sponsor regional and national workshops concerning psychoactive drugs:

- to increase awareness of the serious adverse consequences of their non-rational prescription;
- to develop locally relevant (and therefore potentially enforceable) guidelines for rational prescribing;
- to develop drug monitoring and audit systems; and
- to discuss curricular and other implications for medical education.

Training, registration, certification and licensing of health workers

(8) In order to enhance the ability of health workers to treat patients with problems that may require the use of psychoactive drugs, the attention of organizations responsible for their training should be drawn to the need to review: student selection, curriculum content and format, student assessment, and faculty development; as areas where initiatives need to be taken.

(9) WHO should seek to ensure that organizations accrediting training programmes for health workers require that these pay substantial attention to trainees' acquisition of knowledge and skills in the rational prescribing of psychoactive drugs and the treatment of patients for whom these drugs may be indicated.

Determining the appropriate agents for given conditions rests upon a knowledge of what the drugs can do, and accurate, specific diagnosis. When a therapeutic regime is instituted, the physician must monitor both toxic and therapeutic responses. This depends upon the physician's clinical skills of assessment, and ability to make adjustments of drug dose, frequency and type.

5.6 Patient. Abnormal mental functioning may be caused or aggravated by family, occupational or interpersonal problems. Lifestyle factors (e.g. eating habits, substance use/abuse, sleeping habits) are also relevant to both diagnosis and treatment. The physician must thus resist the temptation to categorize patients, treating them individually and appropriately, taking into account the special needs caused by age, gender, background and beliefs.

Attitudes play upon the doctor-patient relationship in many ways. Deep-seated - and frequently denied - ones lead to inappropriate fear, hostility, rationalization and denial.

5.7 Environment. The milieu in which the medical practitioner functions has a great impact on his or her practices. Health care systems which too frequently focus upon economic considerations largely dictate workloads and "what is possible" in the delivery of health care. They may appear to mandate the most expedient rather than the best mode of therapy. The pharmaceutical industry attempts to influence prescribers through aggressive advertising and promotional campaigns often targetted at both laymen and professionals.

5.8 Potential interventions

These putative causes suggest a wide range of possible interventions to improve the state of rational prescribing. The Working Group was charged with focusing upon educational strategies, within medical education. In doing so, however, the Group recognized that educational efforts alone will only ameliorate the problem, and not solve it.

Better professional education must be coupled with lay education, attempts to change cultural biases, societal policy and health care system operations. Prescribing practices could be greatly improved by a more definitive understanding of psychiatric disorders - especially the "minor", non-psychotic, emotional ones. This will require extensive research.

6. Medical education

6.1 Current teaching

The Working Group did not solicit comprehensive surveys of teaching given to medical students around the world. It was clear however from reports from North America, the United Kingdom and Nigeria that the subject is certainly not given general and substantial curricular time. In many medical schools, curriculum planning is at a day-to-day level left to departments: the extent and nature of the teaching on "rational" prescribing of psychoactive drugs, normally no more than a few hours, are decided by the interests of the staff member assigned for the time being to the task.

The Group's evidence was that basic pharmacologists and psychiatrists take principal responsibility for teaching the subject. Inevitably, unplanned occasions will occur when clinical situations afford additional opportunities for its consideration. No emphasis was placed on its assessment in examinations.

In preparation for the meeting, surveys were conducted by participants in the UK, Canada and the USA to establish the climate of opinion amongst medical school deans concerning the profile of the topic within the curriculum. The great majority saw it as requiring some action, and said that they would be prepared to support such. In North America, over half of responding deans were prepared to spend time taking an initiative on the matter with Faculty Council (or Board, or other committee); in the UK this figure was 69%. A small minority regarded it as unimportant and worthy of no action, however. A number of deans, whilst supporting the need for action, pointed out that medical schools' curricula are the target of many other worthy campaigns - enhancing the teaching about alcohol and alcohol-abuse, for example, and improving students' communication skills.

Evidence from students suggests that they generally recognize the topic's importance and would agree to its achieving a higher curricular profile.

6.2 The situation in developing countries

Medical schools in most of the developing countries generally run a five or six-year programme - two or three years of pre-clinical and three years of clinical studies. The Organization of the teaching departments and the curriculum mirrors that of medical schools in the technologically advanced countries: most are discipline-oriented and departmentally organized.

However, the problems of these schools are in general far more acute than in the developed countries. Professionally qualified academic staff are fewer in number; information on the increasing number of psychotropic drugs on the market is largely provided by pharmaceutical companies; and there is a deficiency of adequate laboratory diagnostic aids. Diagnostic accuracy and rational prescription of psychotropic drugs thus constitute major problems in the medical schools as well as in the health services of these nations.

Within the past decade, there have been new developments in medical schools to make their activities more relevant to the needs of the community and to introduce integrated teaching programmes. However, systems for providing continuing education have generally been inadequately developed. In addition, there is no system whereby the activities of the graduates could be fed back to the medical schools for reappraisal. There are no auditing systems for medical practice. The structures of the medical schools are such that the deans play very significant roles both in curriculum development and in providing academic leadership. The professional licensing bodies, however, regulate on the professional competence required of the graduate.

To introduce change into medical education, the context of health care delivery must be considered: the heavy workload, the inadequacy of laboratory and ancillary support, and the limited sources of new information. Physicians must be prepared to cope with the difficult circumstances and to make rational decisions, especially when under pressure. Knowledge and skills in making decisions - in particular, in prescribing - must be coupled with responsible attitudes towards acquiring the best available information and keeping the welfare of patients and the community as paramount. Many medical schools have extended the learning ground from the university hospitals out to community hospitals and other health service facilities so decision-making can be learned in the real settings. Indeed, at the recent National Conference on Medical Education in Thailand, for example, a policy was adopted requiring a part of medical education to be community-based.

Since many psychoactive drugs are freely available in developing countries there is a particular risk of misuse. The role of doctors in the community extends beyond their rational prescribing behaviour to the support of the community to prevent such misuse and to the education of other health workers. They must provide a good role model in this regard.

Some important features of the situation are:

- control of prescribing practices is weak;
- a multitude of psychoactive drugs is available, especially for private practice, ...
- ... often on the open market without prescription;
- but government health services frequently have limited and often erratic supplies of pharmaceuticals;
- doctors' performance is not generally monitored;
- there is little awareness amongst the leaders of medical organizations of the size or importance of the problem; and
- the workload of doctors is on average very high.

A large variety of local (e.g. hospital), national and international regulatory manoeuvres combined with education have been shown to decrease expenditure. The quality of patient care is usually unchanged or may improve. Typically, the quality of care is not directly measured. Clinically important differences rather than statistical differences are related to health status.

Features of these regulatory manoeuvres include:

(1) The major assumption is that quality of patient care must be improved or (at worst) unchanged and that rational decisions about substitution and deletions of drugs can be made by a process of review and peer-expert physician opinion.

(2) They are most easily applied in hospital.

(3) A formulary system exists.

(4) Pharmacy staff often have clinical training.

(5) Pharmacy staff provide leadership and innovation in this area.

(6) Programmes are targeted on particularly costly/toxic drugs. Target drugs include benzodiazepines, propoxyphene. Little attention has been paid to other psychoactive drugs.

(7) In the making of these decisions, support of the pharmaceuticals and therapeutics committee (or its equivalent), and key administrative individuals, e.g. Chief of Medical Staff, is needed.

(8) Arbitrary restrictive measures create considerable ill will. To avoid this, an education programme is needed as well as an option where all drugs can be obtained under some special procedure.

Formulary or other restrictions, while effective in decreasing use of drugs, may set in motion compensatory changes in prescribing patterns. For example, restricting diazepam may result in an increase in chlordiazepoxide and oxazepam; restricting propoxyphene may increase analgesic combinations containing codeine. The implication of these shifts is that a drug utilization monitoring system must include alternate members of a class in order to detect shifts in usage after a restriction is applied.

In CME, educational manoeuvres coupled with sensible restrictions on prescribing can promote rational prescribing. Short-term simple education manoeuvres alone have not been found to affect prescribing behaviours.

8. Research

In these discussions, the Working Group was handicapped by a lack of trans-national information on five matters.

(1) Details of education (at undergraduate, postgraduate and continuing levels) on psychoactive drugs generally, including their rational prescribing. (Although schedules and syllabi may report the existence of such teaching, they rarely reflect what, from the learner's point of view, actually happens.)

(2) The nature and extent of prescribing of psychoactive drugs, and in particular, the associated or resultant problems; the impact upon the health status of populations.

(3) Specific information on educational innovations and successes concerning the teaching of rational prescribing.

(4) High quality studies concerning the impact upon practice of medical education initiatives.

(5) Comprehensive educational models concerning rational prescribing.

(b) "Don't try to do it by yourself" (a) because you will need the support of others to sustain the effort; and (b) because members of the department in which innovation is being attempted must be involved all the way through. They need to identify the innovation as theirs, and understand the rationale behind it.

(c) You will need a group - a "task force". In the composition of the task force consider the role of: appropriate faculty and departmental members; consumers; students; lay public (patients or potential patients); practitioners in the community; medical school administrators; medical education specialists; and representatives of the health service.

(d) Look at the "obstacles to innovation" again. Can we make progress despite the obstacles? Can the obstacles be reduced or removed?

(e) "Things will be better!" Comfort and reassure faculty members in departments in which change is sought. They will still be around after the innovation is accomplished, they will be better teachers, they will be more gratified by the course/s they are offering the students.

(f) "Monitor the change". Demonstrate overtly that the effects of the innovation will be closely monitored (and widely advertised if successful).

(g) "Use the experts". Suggest strongly to the faculty members attempting change that the process of education innovation is likelier to be easier and more successful if specific expert educational advice is sought.

7.2 Postgraduate medical education

Postgraduate trainees require structured learning exercises in addition to clinical practice concerning rational prescribing of psychoactive drugs. In one study, psychiatric trainees indicated that they would like more formal instruction concerning rational prescribing from consultant staff. They seemed dissatisfied with the expertise of their teachers in this area.

Continuing medical education and associated control measures

Practitioner behaviour can be improved by continuing medical education interventions. From the literature, a number of characteristics of effective educational interventions seem to be important. They:

(1) use actual patterns of prescription by individual physicians in their practice setting. This requires some type of monitoring audit process;

(2) target (heavy) prescribers;

(3) focus on specific drugs associated with problems;

(4) develop special educational materials for the intervention, e.g. "counter-advertising" (= attempting to neutralize inappropriate advertisements), employing behavioural principles;

(5) feed back information on drug use pattern, with identification of possible problem areas to the prescribers; and

(6) include individualized advice (counselling or meeting) about drug use.

The literature does not support the effectiveness of drug bulletins, public awareness campaigns, lectures, seminars, videos, cassette tapes, price lists, reminder notes or checklists; decision-making algorithms; handbooks, guidelines, focusing on cost or toxicity as an issue; mailed brochures; "counter-advertising" alone.

Changes needed in medical education towards the rational prescribing of psychoactive drugs are thus even more urgently needed in developing countries than elsewhere. The task of implementing change is truly formidable.

6.3 Why is current teaching ineffective?

Analysing a complex educational problem such as this in a few paragraphs must necessarily be simplified, but it need not be simplistic. What follows is based upon recent educational research, much of it school-based, which demonstrates the close links between learning environment and outcome. But it must be fair to assert that one reason why current teaching has so little impact upon medical students is because there is so little of it.

A poor "practice behaviour" - for example, not questioning the reason given by a patient for seeking a psychoactive drug - can certainly be attributed to the doctor not having been taught appropriate knowledge, skills or attitudes at medical school (or later). But why should this be so? The reasons are concerned with the milieu or educational context in which teaching and learning take place, and the pressures this places on students.

Many medical schools are organized within high technology tertiary care hospitals, and teaching is inevitably oriented towards the sort of medicine practised within them. Traditional hierarchies of staff and established procedures create a powerful context for role modelling by students who tend to adopt similar attitudes and priorities to those of their teachers. These inevitably place high value upon diagnosable, characterisable, urgent, physical illness. Lower value is given to chronic, non-physical, arguably preventable conditions. By creating small, inward-looking, specialty-oriented groups, departmentalization may reinforce these differences.

The selection of medical students may also play a role, especially if, with the use of untrained selection interviewers, "cloning", or the selection of individuals just like the selectors, tends to occur. Similarly, teaching conventions operate to influence student attitudes and behaviour. For example, schools adopting lectures as the principal format for "instruction" tend to reinforce the belief that there are those who know, and that those who don't can become expert by assimilating what these experts say; whereas those medical schools who favour small group teaching will to some extent encourage questioning and active, rather than passive, learning. In the latter case, students are more likely to develop their own interest and question established ways of procedure - for example, prescribing psychoactive drugs "non-rationally".

7. How can the problems be overcome? Suggested initiatives in medical education

7.1 Undergraduate medical education

Introduction. The Working Group felt, in view of the seriousness of the problem, that all medical schools need to give consideration to the comprehensive teaching of the rational prescribing of psychoactive drugs in their curricula. Clearly, the most convenient time for this is when new curricula (or new schools) are being planned or when general curricular overhaul is under consideration. In such circumstances, the Group hopes that the subject would be viewed as transcending disciplines, and integrated appropriately.

Unfortunately, most curricula are not given frequent overhauls. This section will therefore offer specific suggestions which may be of use to medical schools not planning radical curriculum revision.

Student selection. Student selection is an essential consideration for any educational programme. Although the relationship between entry characteristics of medical students and specific aspects of practice behaviour is not clear, recent research has shown that different types of student (e.g. female; liberal-thinking; humanistic) may be drawn to certain sorts of career (e.g. primary health care; psychiatry). It may be that such career aspirations are themselves linked to attitudes which would predispose to more rational prescribing. Research on this is urgently needed. The general literature on selection would suggest that medical schools should:

- concentrate upon selecting students with attributes desirable in a good doctor, but which are unlikely to be affected by training (e.g. honesty; perseverance);

- avoid selecting students with inappropriate attributes as evidenced by reports on their prior behaviour;

- train interviewers (where interviews are used) so that they select more objectively.

It may be helpful if schools make clear their interest in the proper prescribing of drugs in their promotional literature.

Curriculum format and content. Several problems are apparent with respect to undergraduate medical education and rational prescribing.

- lack of vertical and horizontal integration; psychopharmacological teaching is scattered across years and subjects;

- omissions, overlap and lack of therapeutics teaching;

- excessive emphasis on lectures, factual material and basic pharmacology;

- lack of structured, problem-based opportunities for students to acquire and practise the problem-solving, decision-making and integration which will characterize their post-graduate lives;

- lack of early clinical exposure to clinical problems in the context of basic science to permit application and generalization; and

- lack of innovation in medical education in pharmacology relating to rational prescribing.

Effective psychopharmacology education for medical students may be precluded by organizational and educational factors. Because many people are involved in curriculum management and teaching it is often difficult to be fully informed about what is being taught. Medical schools should determine exactly what is currently being taught, by whom, how, and to what effect.

The ideal teaching pattern to encourage rational prescribing is in conflict with the social ecology of departmentally or discipline-organized medical schools. Hence, psychopharmacology teaching is incomplete and fragmented since teaching outside the key departmental unit is uncoordinated and lacks integration.

Strategies which may help to remedy some of these problems are:

- a key staff member should be designated to take responsibility for coordinating the teaching of the subject;

- the organizational planning unit should be interdepartmental;

- avoid contradictory (prescribing) messages being received by students;

- involve students in real clinical situations early in the course;

- introduce substantial components of multidisciplinary problem-based teaching; and

- monitor the outcome.

Teaching and learning. Rational prescribing demands thought on the part of the prescriber, so schools should consider the appropriateness of the way(s) they teach the subject. In general, small-group teaching is likely to produce a more questioning, thinking graduate, than will didactic lecturing and rote learning.

The environment in which students receive their practical experience is vital. It is clearly important that students are not trained in clinical environments where they will see non-rational prescribing. And it is desirable that students receive experience where possible in typical - rather than unusual - practice environments.

Student assessment. Rational prescribing should be regularly assessed within each school's formal assessment system. And emphasis should be placed upon performance of relevant tasks, rather than regurgitation of factual knowledge.

One part of the medical school's assessment system which may prove particularly amenable to influence is the viva, or clinical oral examination, when this is used. Frequently, this is an unstructured process. Use of a structuring marking grid (see example, Annex 3) may help examiners focus on particular aspects or topics - in this case, rational prescribing.

Faculty development. It is apparent that most faculty members of medical schools have had little formal training concerning the teaching of rational prescribing. Any educational initiatives should be accompanied by specific programmes to enhance faculty teaching skills. Such programmes will require trained medical educationists who are familiar with both the special needs of medical education and educational theory and practice generally.

Deans and other medical school officers should become aware of the obstacles to change and strategies for surmounting them (see below). Clinical pharmacologists can play a key role in fostering medical education and research in rational prescribing. Such individuals should be recruited by medical schools not possessing them.

Implementation of curricular change. Changing medical education is difficult. The origins of resistance to change and institutional strategies to implement new courses should be carefully considered. A recent analysis of innovation in medical schools' curricula provided a set of guidelines for would-be innovators. These were:

(1) Look at your own curriculum and academic departments carefully

(a) Only try to change things where there is a problem. Be quite clear of the educational reasons as to why change is necessary.

(b) Recognize that there will, in the medical school, already be some settings in which innovation is already occurring. Offer interest and help here.

(c) Do not try to innovate primarily in departments where staff members are extremely conservative, or where there has been a recent disappointing innovation.

(d) Identify staff members who are educationally open-minded by:

- running workshops (and seeing who comes!);

- establishing undergraduate teaching prizes for staff members;

- circulating newsletters regarding medical education.

(2) Look at strategies which seem to work

(a) "Start small". Having found an educationally active department where change is appropriate, work very hard to improve their aspect of the assessment system as much as possible.

Hopefully, when students and often departments note the subsequent improvement, there will be a stimulating effect resulting in interest in innovation in other departments. A good example must be one of the best ways of raising faculty awareness of educational issues.